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ABSTRACT

Although school district administration has previously been influenced by the introduction and use of larger computers, the microcomputer brought the potential for revolutionizing the principal's job. Many principals may still be unaware of the possible benefits offered by microcomputers or unprepared to capitalize on them. This paper addresses several concerns: (1) the administrative purposes for which microcomputers are being used by elementary and secondary school principals; (2) the kind of training received by these principals; (3) the microcomputer training being offered in educational administration programs; (4) how this training is being provided; and (5) training institutions' future plans for teaching about microcomputers. The paper synthesizes and summarizes findings reported in three separate studies sponsored by Temple University (Pennsylvania). The data comprised principals' and educational administration faculty's plans and practices gathered through questionnaires and interviews. Findings suggest that relatively few principals are using computers for administrative uses involving database, financial, communications, or specialized management functions. Although secondary schools offer more application opportunities than elementary schools, elementary school principals may be using microcomputers to a greater degree than secondary school principals. If computers are indeed an important technological tool for administrators, clearly more must be done to prepare principals to be comfortable and competent in using them. Educational administration preparation institutions, which now provide some computer instruction as an elective, should continue to evaluate and enhance their computer training programs for administrators. Appended are 18 references. (MLH)

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PC'S AND THE PRINCIPALSHIP

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PC'S AND THE PRINCIPALSHIP

Just ten years ago in 1977, the words "commodore" and "apple" took on new meanings. The microcomputer emerged on the scene as a new tool for instruction and administration. Propelled by the enthusiastic response of students, microcomputers became the new darling of educational innovation. By the fall of 1980, approximately 31,000 microcomputers were in the Nation's public schools.

Although school district administration had been influenced by the introduction and use of larger computers several years earlier, the microcomputer brought the potential for revolutionizing the school administrator's job at the building level. Many principals, however, were ignorant of and unprepared to capitalize on the potential benefits offered by microcomputers.

Traditionally, departments of educational administration have provided the necessary academic preparation, training in skills, and practicum for future school administrators. To what extent are these departments responding to current needs in preparing practicing school administrators? What training and information necessary for prospective principals to respond to the impact of computers in school administration is being offered or planned?

The Problem

The major questions addressed in this paper are as follows:

1. For what administrative purposes are microcomputers being used by elementary school principals? By secondary school principals?
2. By what means did these principals receive training in microcomputers?
3. What training in microcomputers is being offered in educational administration programs?
4. By what means is this training being provided?
5. What are the plans of educational administration programs for teaching about microcomputers?

This paper is a synthesis and summary of findings reported in three separate studies conducted under the sponsorship of Temple University. One study investigated the administrative use of microcomputers by elementary school principals in New Jersey (Serfass). Another study dealt with secondary school principals in Pennsylvania (White), and a third surveyed all educational administration programs in institutions of higher education in Pennsylvania (Weaver). In each study, the use of computers in school administration was the focus of interest.

The data were primarily the expressions of practice and plans given by the participants through questionnaires and interviews. Observation, documents, and other sources were pursued to the extent possible. Both the elementary school survey and higher education survey included on-site data

collection. The findings represent practices reported for the period of 1983-1986.

Procedures

Descriptive research methods were used in the studies. In the investigation of elementary schools a nomination process was used to identify a sample of schools in which microcomputers were used for administrative purposes in a noteworthy and functional manner. The object was to describe "best practice" rather than to ascertain typical practice.

Representatives from thirteen agencies in New Jersey were asked to nominate elementary schools from among the 389 elementary schools in the seven southern counties of New Jersey. In all, 33 schools were identified; the ten nominated most frequently were selected for study. A semistructured interview schedule was developed, tested, and administered to the principals. Following the interview, the school facility was toured and copies of pertinent documents were collected. (Serfass 42-48)

The study of microcomputer use by secondary school principals involved the selection two samples. The first was a random sample of 100 principals from among 230 secondary school principals in six intermediate unit areas of southeastern Pennsylvania. From this group, 69 usable responses were obtained. The second sample was a census of the fifteen secondary school principals in one central Pennsylvania county. All responses were collected by questionnaires and telephone interviews. (White 38-42)

Microcomputer training for school administrators was studied through a census of the fifteen institutions of higher education which offered educational administration programs in Pennsylvania. Fourteen institutions responded to a questionnaire, and five of them were randomly selected for on-site visits and interviews six months later. The questionnaire listed twenty-four potential topics as gleaned from a literature review and pilot test. The topics represented both theory and practical experience in the use of microcomputers for administrative purposes. (Weaver 61-73)

Classification of Microcomputer Applications

The administrative uses of microcomputers have been classified in various ways. One general plan uses five categories of administrative applications: (1) administrative support, (2) classroom/instruction, (3) finance/accounting, (4) pupil personnel, and (5) staff personnel (Splittgerber and Stirzaker 17-21). Another plan, also using five categories, divides them into (1) student affairs, (2) school finance, (3) school personnel, (4) school facilities, and (5) general applications (Haugo 185). A somewhat more specific way of using computer terminology to classify applications provides four categories: (1) database, (2) financial (spreadsheets), (3) communications, and (4) specialized management functions (Gustafson v-vi).

In surveys (1983 and 1985) conducted by the New Jersey School Boards Association, the term "administrative application" was interpreted broadly. Microcomputer applications were

classified into the following areas: accounting, attendance, counseling, database management, grade reporting, integrated software, inventory, library, scheduling, spreadsheets, student records, test scoring, word processing, and other uses.

In any classification scheme, areas may not be clearly mutually exclusive. Accounting, for example, is a special application of database management and spreadsheets. Generally, when an application is identified as accounting or attendance, it is specially dedicated to that application only. Then, too, several of the areas may be part of an integrated system which enables data transfer between functions.

Microcomputer Applications in Elementary School Administration

The classification system proposed by Gustafson was used by Serfass in this study of elementary schools. The four major categories of database, financial, communications, and management were further broken down into fourteen subcategories. The results for the ten selected elementary schools are presented in Table 1. (Serfass 53-57)

At least one database application was found in nine of the schools; one financial application in five schools; at least one communications application in nine schools; and at least one management application in seven schools. Word processing (n=9) and student records (n=8) were the most common applications and were the only ones found in a majority of the schools.

Table 1
Microcomputer Administrative Applications
in Ten Elementary Schools

Application	No. of Schools
Database	
Student records	8
Inventory	5
Equipment	4
Other	2
Financial	
Spreadsheets	5
Communications	
Word processing	9
Integrated software	2
Electronic mail	2
Electronic bulletin board	2
Management	
Attendance	4
Curriculum	2
Counseling	1
Scheduling	1
Testing	1

Either word processing or a student records database was the first application typically introduced in these elementary schools. The reasons given by principals for introducing an application first were, in descending order: (1) it was easiest to introduce, (2) it saved time, (3) it cut paperwork, (4) the software came with the computer, (5) it solved a specific problem.

One school had nine of the fourteen applications, and three other schools each had seven applications. Five schools had only two or three applications. This latter finding was somewhat

surprising in that all ten schools had been cited as exemplars of the administrative use of microcomputers. A favorable reputation evidently could be won by performing well a few applications as well as by performing several.

The school with the most applications had the following ones: student records, inventory, other database, spreadsheets, word processing, integrated software, attendance, scheduling, and curriculm. The only other school using integrated software was one of the three schools having seven applications. Electronic mail and electronic bulletin boards were found only in the two remaining schools having seven applications.

The management applications of scheduling, counseling, and testing occurred only once each. Of course, the need for these applications at the elementary school level is likely to be slight. Attendance applications, on the other hand, might well have been expected to occur more than the four times found, especially in light of the frequent occurrence of a student records application (8 of 10 schools).

Microcomputer Applications in Secondary School Administration

In a random sample of secondary school principals, only twelve of 69 respondents reported having computers in their school offices. Of these twelve, only eight principals indicated that they personally used microcomputers (White 59). A second, selected sample of fifteen secondary school principals was surveyed in depth to ascertain what computer applications were

used in their schools. These applications could be performed on main-frame, mini, or microcomputers.

The classification system used was that proposed by Haugo. His five categories were further broken down into 43 specific management applications. The results are summarized in Table 2 (White 53).

Of the 43 specific management applications, 36 were reported in use by one or more schools. Twenty-three (23) applications were each reported by at least five schools. Most applications cited under school finance and school personnel are likely to be district rather than building level functions. In small school districts the high school principal may, indeed, be responsible for overseeing these functions. The degree of responsibility, however, was not ascertained in the survey. More unique to secondary schools themselves is the application for activity accounting, which was cited by eight of the fifteen principals.

The student affairs category represents a number of important secondary school functions. In this area, three applications (grade reporting, scheduling, and annual attendance) were reported in use by a majority of the principals. Altogether, twelve of the fifteen subcategories in student affairs received mention by one or more principals.

Of the general applications, only word processing was cited by a majority of the principals. Information storage and retrieval, library circulation, project planning and budgeting, and statistical analysis each received two or three citations in this section.

Table 2
Computer Administrative Applications
in Fifteen Secondary Schools
(Cited by Five or More Schools)

Application	No. of Schools
Student Affairs	
Grade reporting	11
Scheduling	10
Annual attendance	9
Daily attendance	7
Guidance records	6
Test scoring and analysis	6
Class records	5
School Finance	
Accounts receivable/payable	12
General accounting	11
Activity accounting	8
General ledger	7
Investment accounting	6
Purchasing	6
Financial forecasting	5
School Personnel	
Paycheck calculation	12
Payroll reporting	12
Personnel records	9
Salary simulation	9
Staff assignments	8
School Facilities	
Energy management	5
General Applications	
Word processing	9
Mailing lists/labels	6
Bus routing	5

Sources of Computer Training

In all ten elementary schools studied, the principal personally used a microcomputer, and seven personally owned one or more microcomputers. Eight of the ten had some previous experience with computers prior to implementing microcomputers in their current positions. The types of experiences reported were: (1) graduate courses in computers, (2) use of computer for doctoral dissertation, (3) computer training in the military, (4) work with computers in industry, (5) taught a college computer course, (6) training received at an educational resource center (state sponsored). High personal interest and self-study were major elements in preparing to use microcomputers. District level support and training were not provided to the principals in most of the districts (Serfass 70-72).

Among the 69 secondary school principals who responded to White's survey, 56 percent reported receiving some type of computer training. Cited most frequently was a non-credit seminar or workshop. Second most frequently reported was a training program provided by a microcomputer vendor. Graduate or undergraduate courses were mentioned by less than 10 percent of the respondents (White 64).

Microcomputer Training in Educational Administration Programs

All fifteen Pennsylvania institutions of higher education offering programs in educational administration were surveyed (Weaver). The program heads from fourteen of these institutions

responded about the computer topics taught currently or planned for future implementation. These institutions were all approved by the Pennsylvania Department of Education to offer programs leading to certification as a school principal.

Of the 24 topics on the questionnaire, seventeen were reported being taught in half (7 of 14) or more of the participating institutions. A basic understanding of types of computers was the topic most frequently reported (12 of 14). Software/disk use, word processing, use of CAI/CMI education, use of a printer, and computer vocabulary each occurred as topics in ten or eleven institutions. The topic of administrative software was among the topics reported in one half of the institutions. (See Table 3.)

Eight of the seventeen topics were identified as having a theoretical orientation, and nine, a practical hands-on emphasis. Programs heads, however, tended to describe their offerings as emphasizing the theoretical dimension. Emphasis on hands-on skills was often not seen to be compatible with the program's philosophy.

Table 3
Computer Topics Currently Taught by Seven or More Institutions of Higher Education
(Weaver 97)

Topic	Frequency N=14
Basic understanding of types of computers	12
Software/disk use	11
Use of CAI/CMI education	11
Use of printer	11
Word processing	11
Computer vocabulary	10
Basic concepts of a complete computer system	9
Basic concepts of how a computer works	9
Test scoring/analysis	9
Accounting	8
Scheduling	8
Administrative software	7
Database files	7
Graphs/charts	7
Knowledge about computer hardware	7
Modem use	7
Spreadsheets	7

Means of Offering Computer Training

In the fourteen institutions, most computer topics were taught by the educational administration faculty (eight institutions). In two instances, only some topics were offered by the program staff while other topics were taught elsewhere in the institution. One institution offered a required course in computers while all others noted that such courses were electives, whether offered inside or outside of the educational administration unit.

In five institutions the computer courses were offered only outside the educational administration unit. In two of these cases, the topics were offered by special units of the institution. One program offered both an inservice experience and a complete course on computer topics. Other education faculty cited as offering computer courses with some of these topics was the elementary education staff (Weaver 84, 118). The survey data were not definitive in determining which topics were offered in computer courses per se and which were offered in conjunction with other courses, nor did the data reveal the depth to which the topics were taught.

Future Plans for Computer Topics

The educational administration program heads identified five additional topics in some stage of planning or discussion which would make these topics available in seven or more of the fourteen institutions. These topics were:

1. Decision-making programs
2. Electronic mail
3. Legal applications: computer leasing/buying
4. Legal implications: software replication
5. Simulated planning (Weaver 101).

With the implementation of the above five computer topics, at least half of the institutions surveyed (7 of 14) would be offering 22 of the 24 topics on the questionnaire. The two topics not included would be (1) knowledge about types of computer security and (2) knowledge about computer maintenance. The latter topics were seen as not primary concerns of

adminstrators and need not, therefore, be addressed in computer training programs (Weaver 123).

When all topics were classified according to a theoretical or a practical orientation, the topics taught currently tended (53%) towards the theoretical side. The topics planned for future implementation were predominately (62%) practical, hands-on experiences. The end result would yield a near 50-50 balance between the two orientations. Nevertheless, program heads expressed an expectation for a greater emphasis on the theoretical dimension in the future. It was anticipated that future students will possess more hands-on experience before entering an administration program than do current students (Weaver 116, 126). Again, although the topics may be offered to reflect a 50-50 theoretical-practical distribution, the depth with which they are emphasized may vary. With students needing less basic orientation and hands-on experience with computers, more attention may be given to administrative applications.

Concluding Observations

The findings suggest that relatively few school principals are using microcomputers for administrative uses. The number of different applications in place is greater in secondary schools than in elementary schools, but elementary school principals may be using microcomputers themselves to a greater degree than are secondary school principals. If the claims of the importance of this technology as a tool for administrators are valid, then much work remains to be done to prepare more principals to be comfortable and competent in using it.

Educational administration programs have incorporated some instruction about computers. Recently prepared administrators may use microcomputers to a greater degree than incumbents who received their preparation in administration prior to the advent of microcomputers. Moreover, as the number of professors who use microcomputers increases, a greater emphasis on microcomputers in educational administration programs would seem likely. At present, microcomputer instruction is an elective for most students and may not provide sufficient depth to give even these students the competency to use microcomputers for administrative purposes.

Ideally, students entering principalship programs would be computer literate and able to use word processing, spreadsheet, and database applications on a microcomputer. If the students did not possess this level of knowledge and skill, they should be provided the opportunity to acquire it. The program would then build on this competency by teaching administrative uses of these applications and introducing students to specialized management software. Whether students in a principalship program would actually engage in programming or systems design seems unlikely in the near future. A few such students may pursue these topics in advance study, most likely in a program beyond the principalship program.

In the immediate future, educational administration programs should continue to evaluate and enhance their instruction pertaining to the administrative use of microcomputers by school principals. What part of the instruction should be provided in

computer courses and what part in conjunction with existing administration courses needs to be determined. And, of course, educational administration faculties must grow in their own understanding and use of microcomputers in order to offer meaningful instruction.

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